AB MIX NUTRITION MEASURING SYSTEM AUTOMATION PROTOTYPE WITH AEROPONIC PLANTING METHOD BASED ON THE INTERNET OF THINGS

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ABSTRACT

Agriculture is one of the livelihoods for a number of people in Indonesia. Over time, modern agricultural methods began to be applied to some circles of society. One of the methods used is aeroponics. The aeroponic method is carried out by spraying air containing water containing a nutrient solution containing a nutrient solution directly on the plant roots. The nutrient spraying process is carried out intermittently on and off using a timer. Nutrients needed by plants are obtained from ABmix Nutrition fertilizer. According to Maimmunah (2017) who researched the growth response and production of two mustard plant varieties on a substrate hydroponic system and the concentration of the AB Mix solution according to each variety, the results of a nutrient concentration of 7ml/L of water gave higher yields than other nutrient concentrations. In this study, an ABmix nutrient measuring device was designed for the aeroponic planting method using a flowmeter sensor to calculate the concentration required by plants. This tool is designed to adjust the ideal concentration of ABmix nutrients in the aeroponic plant method with mustard greens. Based on the planting needs that have been determined, this tool is equipped with an RTC DS3231 timer as a spraying timer and a harvest timer, also equipped with a water pump and sprinkler to provide optimal spraying to plant roots. In the monitoring process, an LCD (liquid crystal display) is added as a display of the remaining nutrients and the length of the growing period manually on the growbox and can be accessed via the Telegram application as a process of IoT (internet of things) concepts applied to research. In this system, green mustard greens were selected as vegetables that were cultivated with a concentration of 7ml/L ABmix fertilizer with a planting period of 30 days. ABmix nutrient measuring device with aeroponic planting method using the YF-S201 flowmeter sensor module with an average error value of flowmeter A 18.22%, flowmeter B 13.97% and flowmeter C 0.45%. After testing and research this tool can work properly and all functions on the system can run normally.

Keywords*: aeroponics, ABmix fertilizer, flowmeter sensor*